



# SMART Inclusion Enhances Student Achievements

The London District Catholic School Board has found success by integrating SMART technology with assistive technology.

By Janice Long and Cheryl Cameron

**S**MART Inclusion originated at the Upper Canada District School Board (UCDSB) during the 2008-2009 school year. The UCDSB reported significant improvements in the areas of student achievement and participation. The London District Catholic School Board (LDCSB) implemented the SMART Inclusion Project in 11 classrooms throughout the board during the 2009-2010 school year and was able to replicate the findings from the UCDSB.

The SMART Inclusion project at London District Catholic School Board examined the use of interactive whiteboards (i.e. SMART technology) integrated with specialized software/assistive technology, framed within best practices from education and speech-language pathology to support communication skills and participation for students with significant communication impairments.

## Process

Eight schools (total of 11 classrooms) participated in the SMART Inclusion project. Each classroom had at least one student with pervasive/extensive support levels.

The students' exceptionalities included: Autism Spectrum Disorder (ASD), Developmental Disability, Mild Intellectual Disability and Language Impairment. In May of 2009, these students were identified as eligible for a Ministry of Education Special Equipment Allowance (SEA) grant to purchase equipment. This equipment included a SMARTBoard and appropriate assistive technology. This equipment was deemed

essential to support the students' communication skills and achieve the goal of meaningful educational and social participation, which is the goal for all students. Extensive training and coaching was provided for classroom teachers, educational assistants and resource teachers on the theory behind SMART Inclusion and the technology.

## What is SMART Inclusion?

*The theory... "Inclusion without participation is not inclusion at all."*

The SMART Inclusion project provided school teams with the theoretical underpinnings and strategies of Universal Design for Learning (UDL) (Turnball et al., 2002), Differentiated Instruction (DI) (Tomlinson, C.A., 1999), and the Participation Model (Rosenberg & Beukelman, 1987; Beukelman & Mirenda, 1998), along with the technology support necessary for successful inclusion of all students.

The Participation Model (PM) is a speech-language pathology model that provides a framework for supporting academic and social participation. This model captures those students who fall through the UDL and DI net by addressing how to identify the barriers to participation that exist, despite UDL and DI, so that even those students with severe communication impairments are able to participate at some level in classroom activities. The philosophy behind the PM is that students with special needs, including those who use assistive technology and/or alternative and augmentative communication tools, can participate in the same classroom activities as peers while still meeting their individual learning needs and goals. Programming for students with

special needs, within the PM framework, is collaborative. The process includes teachers, educational assistants, speech-language pathologists and parents in setting academic and social goals.

## The technology

Some of the students in the project were already using assistive technology. However, the technology was frequently used by an individual student in isolation, resulting in minimal opportunities for academic and social participation.

The use of interactive white board (IWB) technology allows for the use of computer technology in small and large group instruction. This results in a UDL approach to instruction; namely, multiple means of representation, expression and engagement. Use of multiple formats for representing concepts and text is made easier, including auditory (e.g. voice, speech output from computer, sound effects), visual (picture communication symbols, printed words, graphics) and kinesthetic modalities (e.g. touching, adding to and moving information on the IWB).

To achieve SMART Inclusion, the student's assistive technology was integrated with the IWB during group instruction. While assistive technology was originally deemed essential for one student, many students within the classroom benefited from its use; therefore it was found to be "necessary for some, good for all."

## Evaluation

Pre and post-data was collected on the 11 students for whom the SEA claim was pursued, as well as an additional five

students with special needs in those SMART Inclusion classrooms. The data sources included surveys (completed by school teams), speech-language assessments, review of IEPs and report cards, and interviews with teachers and principals. Qualitative and quantitative data was gathered on academic participation, social participation, communication skills, behaviours, learning skills and inclusion.

## Results/Implications

### Implications for students with special needs

- The “achievement gap” between students with special needs and peers was narrowed;
- IEP goals were met resulting in increased learning expectations in the classroom; and
- Students with special needs became more active social participants.

### Implications for the whole class

- All students were more engaged;
- Assistive technology was being used for whole class instruction;
- “Digital natives” (students growing up in a digital world) were able to pull along the “digital immigrants” (adults) in terms of familiarity and integrated use of the technology (Prensky, 2001); and
- More teaching and less behaviour management

### Implications for the school community

- The Participation Model has been expanded beyond the SMART Inclusion classrooms;
- Principals are implementing SMART Inclusion theory and technology into other classrooms; and
- Revisions are being made to school success plans to include the participation model and assistive technology.

## Results/Data

The following results are based on the surveys completed by the school team. The surveys provided pre and post measures for students with special needs in the areas of engagement, independence, communication, behaviour and academic and social participation.

### Engagement (See Figure 1)

Pre: Students were engaged in the classroom activities 57 per cent of the time.

Post: Students were engaged in classroom activities 82 per cent of the time.

### Independence (See Figure 2)

Independence was measured using two scales. The first measure examined the percentage of time that direct assistance was required for the students to understand the tasks (Pre: 86 per cent of the time; Post: 64 per cent of the time).

The second measure examined the amount of direct assistance required to complete tasks (Pre: 82 per cent; Post: 57 per cent).

Great decreases in the direct support required were found.

### Communication (See Figure 3)

Significant increases in successful communication attempts (Pre: 54 per cent; Post: 76 per cent) and successful social communication attempts (Pre: 44 per cent; Post: 78 per cent) were documented.

Standardized speech-language assessments also revealed improvements with receptive language, expressive language and social language skills.

## Behaviour

Behaviour incidents were recorded for seven of the 14 participants at the time of the pre-survey. A behaviour incident was defined as an outburst that required the removal of the student from the classroom.

After the implementation of SMART Inclusion, five of the seven students had a decrease in behavioural incidents by at least 50 per cent.

## Academic participation/Social participation

The Participation Model was used to identify levels of academic and social participation (academic participation levels are on a continuum: “none”, “alternate”, “curriculum overlapping”, “modified” and “same”.) Initially, 10 of the 14 students had academic participation levels ranging from “none” to “modified” (four students were found to have the “same” academic participation as their peers). Following the implementation of SMART Inclusion, six of the 10 students increased their academic participation by at least one level. The social participation levels range from: “none”, “passive”, “non-influential” and “influential”. The most significant findings in this area is that all students are now involved with a peer group and most students have improved their social participation to the “non-influential” level.

## SMART Inclusion: what next?

The LDCSB is excited to expand the SMART Inclusion project during the 2010-2011 school year to include School to Community Pathway Program classrooms in five secondary schools. ○

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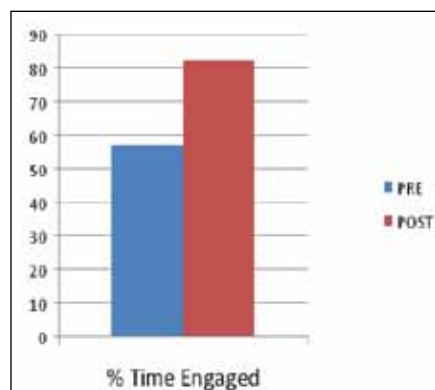


Figure 1.

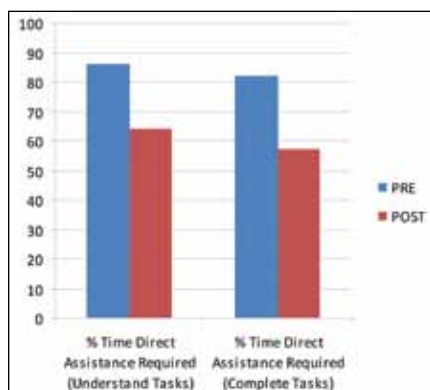


Figure 2.

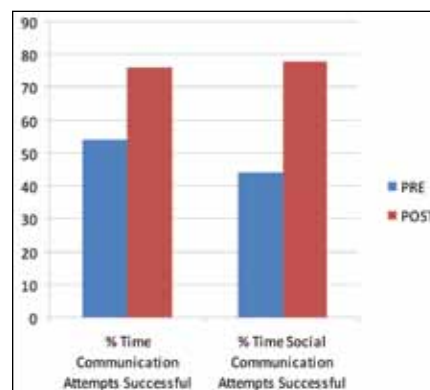


Figure 3.